

## **General Disclaimer**

### **One or more of the Following Statements may affect this Document**

- This document has been reproduced from the best copy furnished by the organizational source. It is being released in the interest of making available as much information as possible.
- This document may contain data, which exceeds the sheet parameters. It was furnished in this condition by the organizational source and is the best copy available.
- This document may contain tone-on-tone or color graphs, charts and/or pictures, which have been reproduced in black and white.
- This document is paginated as submitted by the original source.
- Portions of this document are not fully legible due to the historical nature of some of the material. However, it is the best reproduction available from the original submission.

Title Seismicity and Active Tectonics of the Andes  
and the Origin of the Altiplano

Principal Investigators Peter Molnar and B. Clark Burchfiel

Grantee Institution Massachusetts Institute of Technology  
Cambridge, Massachusetts 02139

Period Covered September 1, 1980 through February 28, 1981

Grant Number NAG 5-19

Report Submitted October 7, 1982



Unclass  
35489

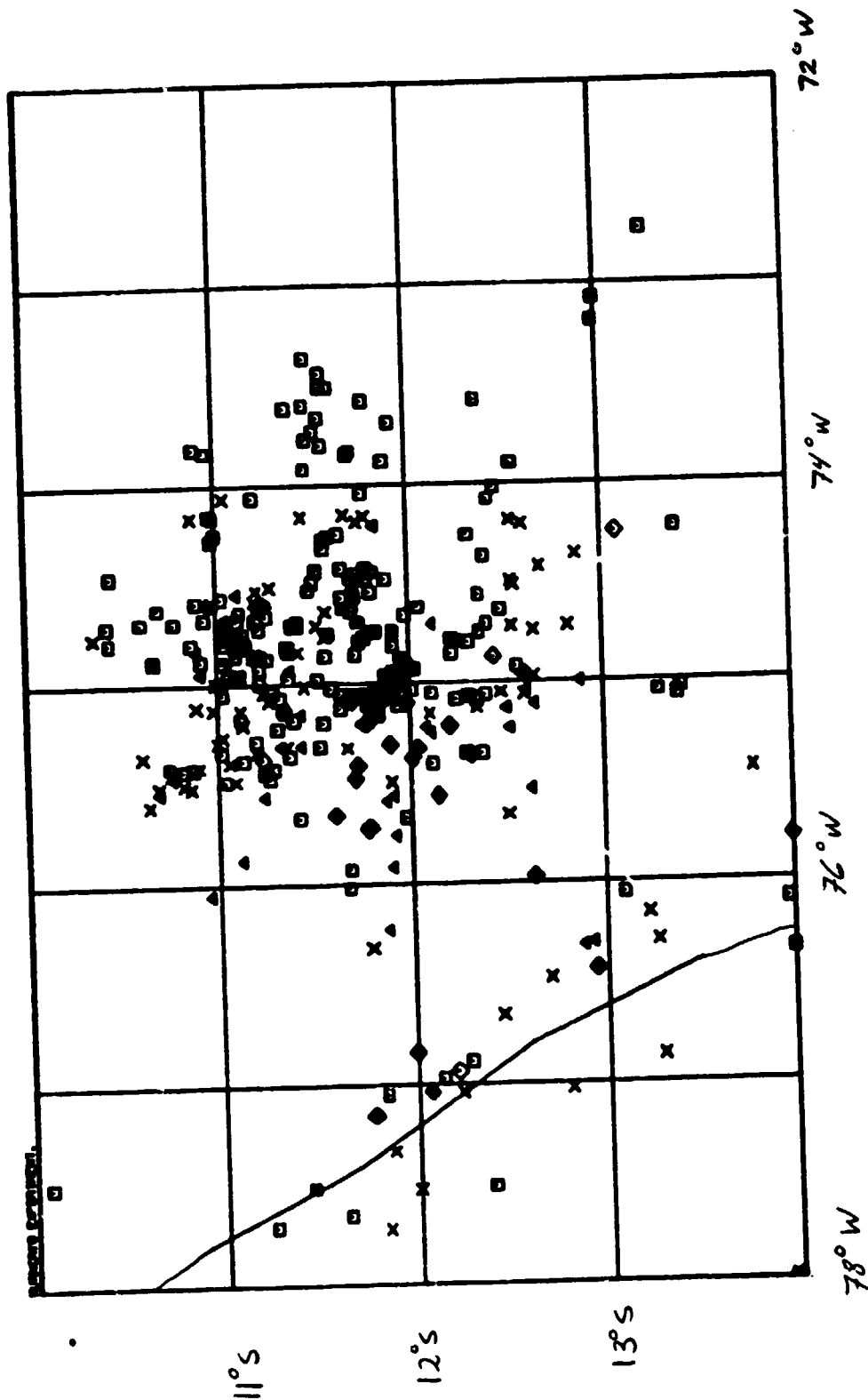
We have nearly completed the analysis of the data obtained in 1980 from the Huancayo region. Except for a cluster of activity near the epicenter of the Huaytapallana earthquake, most of the shallow earthquakes occur beneath the sub-Andes (Figures 1 and 2) because they occur outside of our network. The activity in the high-Andes is considerably lower (Figure 1). Intermediate depth activity indicated a nearly flat plane at a depth of about 100 km (Figure 2). We are still checking the locations in order to decide if the gap between shallow and intermediate depth events is larger and if the intermediate depth zone is narrower.

Abundant activity near the epicenter of the 1970 Huaytapallana earthquakes suggests that aftershocks continue (Figure 3). Stars in Figure 3 show the epicenters of the major events in 1970. The micro-earthquakes are located northeast of the surface rupture, and in cross-section seem to define a plane dipping northeast (Figure 4). These observations are consistent with both the surface faulting and the fault plane solution.

We hope to complete this study in the next couple of months.

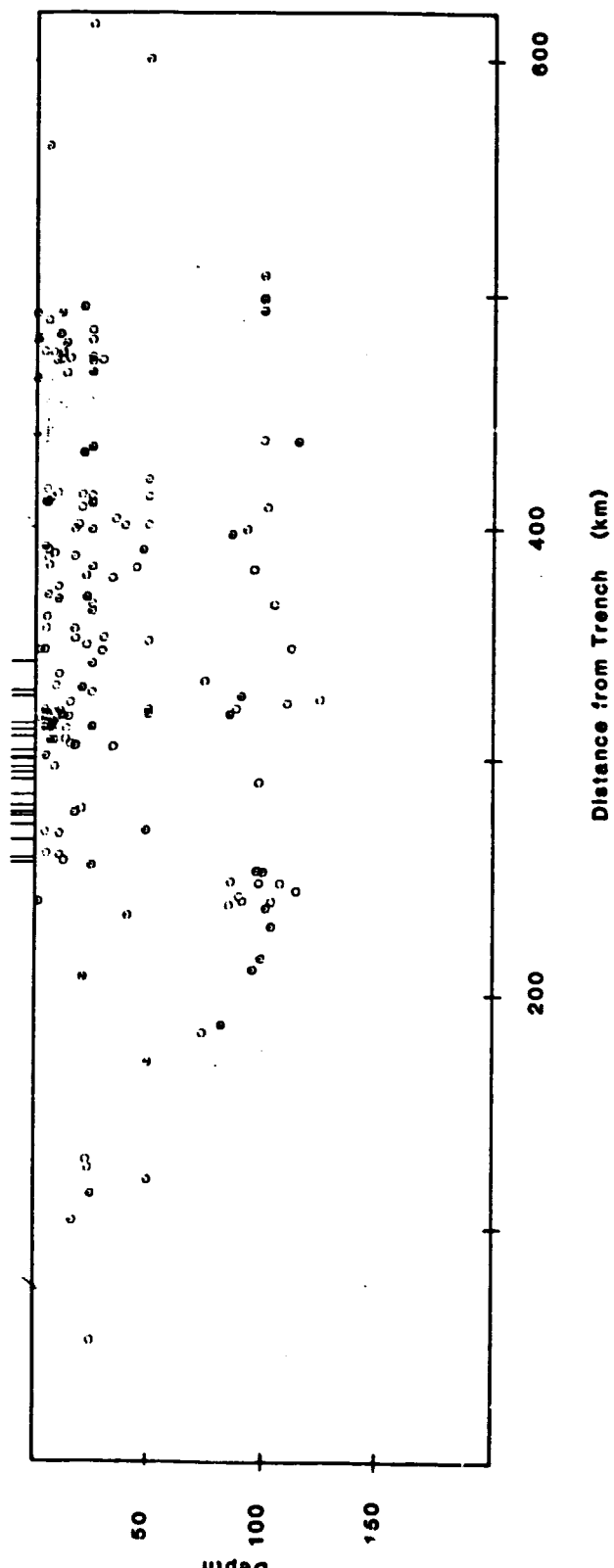
ORIGINAL PAGE IS  
OF POOR QUALITY

①

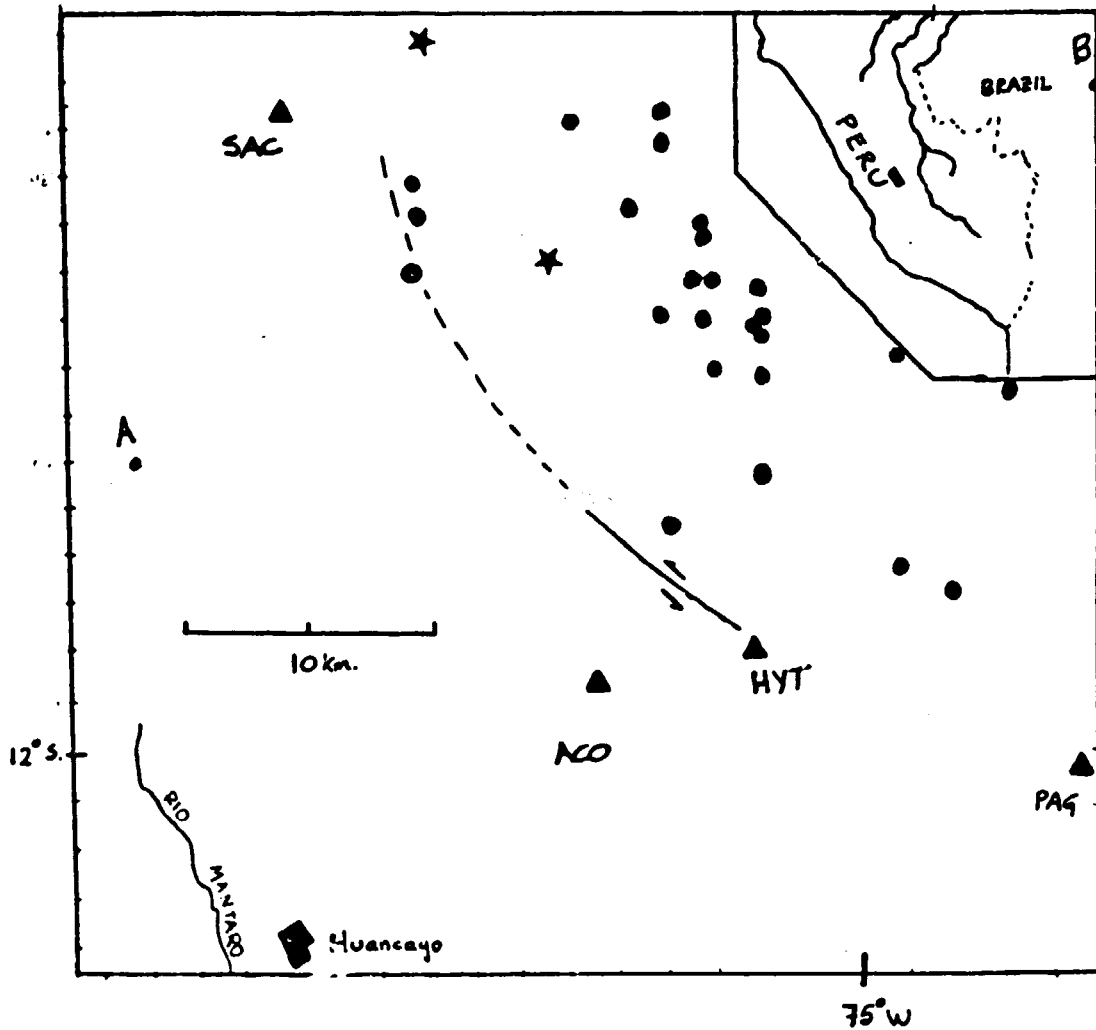


- Stations
- ◆ Earthquakes  $h = 0-40 \text{ km}$
  - Earthquakes  $h = 40-85 \text{ km}$
  - x Earthquakes  $h = 85-100 \text{ km}$
  - △ Earthquakes  $h > 100 \text{ km}$

ORIGINAL PAGE IS  
OF POOR QUALITY



ORIGINAL PAGE IS  
OF POOR QUALITY



ORIGINAL PAGE IS  
OF POOR QUALITY

Cross Section A-B

